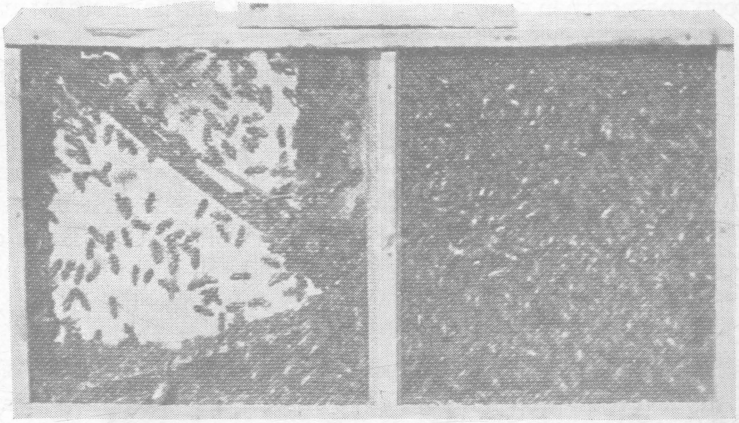
No. 98 February, 1930

BULLETIN
OF THE
OHIO STATE UNIVERSITY AGRICULTURAL COLLEGE EXTENSION SERVICE

Handling Package Bees



A 3-pound package of bees with a queen.
(Photograph taken just as it arrived)

By
VIRGIL N. ARGO
Extension Specialist in Entomology
The Ohio State University

THE OHIO STATE UNIVERSITY, COOPERATING WITH THE UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL EXTENSION SERVICE, H. C. RAMSOWER, Director, Columbus
FREE—Cooperative Agricultural Extension Work—Acts of May 8 and June 30, 1914

Handling Package Bees

WHAT ARE "PACKAGE" BEES?

A PACKAGE of bees as advertised for sale in the current bee literature is really two or three pounds of live bees with a queen. These bees, with a queen, are shipped to the purchaser in a screen box with provision for food during their trip. For all practical purposes we might consider this package to be a swarm of bees, but there is this difference between a package and a natural swarm: the northern beekeeper who buys a package of bees will have them delivered to him at a date much earlier than it would be possible for him to procure a natural swarm from his own bees. This is brought about by the difference in time of seasons between the northen states and the extreme southern states, where the package bees are produced.

The business of raising bees for sale by the pound in this fashion has developed in the southern states, where the winters are mild and where the brood rearing cycle of the bees starts as early as January. By the time the northern beekeepers are observing the first activity among their own bees these southern beekeepers will have colonies so strong that they are able to take large quantities of young bees from their colonies and sell them by the pound. The beekeepers who sell package bees are also queen breeders, and, with each package of young bees, which they shake from their strong colonies, they will supply a young queen. The queen is shipped in a standard mailing cage inside the package containing the bees.

The idea of shipping bees in packages without any comb originated many years ago, but it was not until about 1918 that it became a recognized practice for the southern beekeepers to offer such packages for sale.

Package bees for the most part have been used in three different ways: first, to replace colonies, which have died during the winter; second, to be used in making increase or in starting out in the bee business; third, some beekeepers of our most northern territory have made a practice of killing off colonies in the fall and replacing these dead colonies with packages the next spring. These beekeepers figure that the cost of the package in the spring is less than the cost of overwintering the original colony. A fourth use is in strengthening colonies which are weak in the spring. A fifth use for package bees has developed within the last few years and may become very important in the future. It is the practice of

installing packages in hives placed in commercial orchards to be of service to the fruit growers as pollenizing agents.

Perhaps the most widely accepted use of package bees is the first one mentioned, the replacing of colonies which have died during the winter. Beekeepers have found that packages afford a very good insurance against total loss of colonies during the winter. They have found that a package of bees, installed in a hive in which bees have died from starvation or extreme cold in the winter, will build up and produce a normal crop of honey, if properly taken care of. Of course, the beekeeper must always be sure that these colonies which have died have not been infected with American foul brood. A package of bees installed on a set of these diseased combs will at once contract the disease and eventually die.

The second use of package bees, namely, for increase, is the one which we will discuss in this paper.

If a beekeeper desires to increase his number of colonies in the spring, packages afford him a satisfactory method. He will be able to obtain strong colonies of purebred bees free from all infectious diseases, if he will observe some simple precautions and practices.

We have already compared the package to a natural swarm, but there is a fundamental difference. A beekeeper who obtains a natural swarm of bees in the late spring or early summer finds that the bees will establish themselves and prosper in almost any container and that they will take care of themselves without any attention on his part, other than that of hiving them. At the time of natural swarms, there is plenty of available nectar for the bees to use in building up their strength in their new quarters. But the beekeeper in Ohio who orders a package of bees to be delivered to him from a southern state by the middle of April must feed them. There is not enough nectar available at that period. Also, there is every possibility that bad weather will interfere with the flights of the bees.

In the following discussion, we will try to give a method for taking care of packages of bees to be used in making increase, a method as simple and as reliable as possible.

HOW TO OBTAIN PACKAGE BEES

All of the bee journals published in the United States contain numerous advertisements of southern queen breeders who make a practice of selling package bees. The beekeeper who is planning to buy some should find out as early as possible how many he will need and when he would like to have them delivered. Then he

should send his order to the queen breeder of his choice, stating the number he wants and the date on which he would like to have them. It is an advantage to the queen breeder to have these orders as early as possible, so that there may be no delay in sending the bees.

When the time approaches for the bees to arrive at the purchaser's address, it will be well for him to interview his local express agent and make arrangements to be notified by telephone as soon as the bees arrive. The express agent should be instructed to place the bees in a cool, shady place as soon as they arrive. He should understand that it is important that the bees should not be placed in direct sunlight for any length of time. The beekeeper himself should go to the express office and obtain the bees as soon as possible after their arrival.

WHEN TO RECEIVE PACKAGE BEES

The earlier the beekeeper can obtain and take care of package bees the better. Packages which are delivered at an early date will have a greater percentage of young bees than those which arrive later in the season. But the beekeeper should not have them delivered too early on account of the danger of cold weather.

Our observations in Ohio would lead us to recommend that packages should not arrive much before the middle of April. Perhaps, for the man who is an amateur and who is trying out this policy for the first time, it would be better if they did not arrive until the latter part of April. If the bees are shipped in the early part of April, the beekeeper must be ready and willing to feed them heavily as soon as they are placed in their new hives. Of course, the earlier they arrive the better chance they will have of gathering a full crop of nectar, if every effort is made to enable them to build up rapidly through heavy feedings of sugar sirup.

WHAT EQUIPMENT IS NEEDED FOR TAKING CARE OF THE PACKAGES?

The beekeeper should make every effort to have all of his equipment prepared well in advance of the date of arrival of the bees.

He will need a complete hive for each package.

He will need a full set of frames for each hive body. These frames may be filled with foundation, drawn comb, or combs of honey. If drawn combs or combs containing honey are used, he must be certain that no disease was present in the hives from which these combs were obtained. By using frames filled with foundation, he can be certain that the bees start out, at least, in a totally disease-free condition.

For each package he will need one extra hive body in which to place a feeder.

He will need at least one 10-pound pail of sugar sirup for each package, the sugar sirup being made of equal parts by weight of water and granulated cane sugar.

Each package will need one 10-pound pail with a friction top lid. The lid should have about six holes punched in it, using the smallest size shingle nail for this purpose. Such a pail constitutes the best possible type of feeder when filled with sirup and inverted over the bee escape hole in the inner cover above the bees.

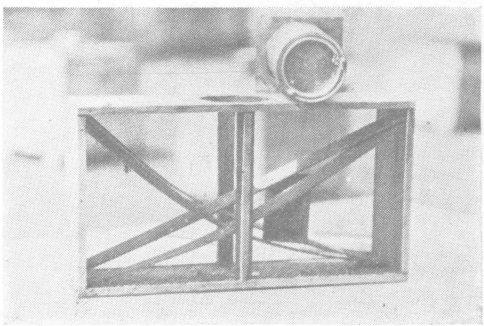
A new paint brush, about 2½ inches wide, will be found to be another necessity.

Some sort of container to carry the supply of sirup will be needed if the bees are to be installed in an out-yard any distance from the home apiary. Since it is very desirable that the sirup be given to the bees warm, it will be found to be quite a help if the beekeeper can obtain a milk can with an insulating jacket, such as dairymen use to keep their milk cool while it is being hauled to market, and keep the sirup in this can while it is being hauled out to the apiary.

HOW THE BEES ARE PLACED IN THE HIVE

When the packages of bees arrive the bees will be quite excited and will show considerable restlessness. A very simple means of quieting them is to paint the screens of the cages with pure water. The bees will lap up this water very rapidly and will calm down at once.

Figure 1 shows an empty package or cage used in shipping bees. The ends, top and bottom are made of wood, the sides are of ordinary window screening. There is a hole in the top through which the bees were introduced and through which they will make their escape into the new hive.



The square object, inside and to the right of the cage, contained the queen. (It has been placed in the empty cage merely to show the position it occupied when the bees were present.) The four diagonal

wooden strips shown in the empty cage act as supports to the cluster of bees. The friction-top-can, which is resting on top of the cage, contained a sirup made of cane sugar and water. The sirup oozed through three small holes in the soldered lids and kept the bees from starving while in transit.

The cover of this bulletin shows an individual package containing three pounds of bees with a queen just as they arrived. Although the bees are pretty well clustered in the container, there are a large number of active individuals buzzing about inside the cage. The cage containing the queen is in the center of the cluster.

Figure 2 shows 20 packages of bees just as they arrived from the express office. The packages were shipped in four crates, each crate consisting of five packages which are held together by four sticks nailed along the ends. The packages are so spaced in these crates that there is about three or four inches between each one, giving plenty of room for air to circulate along the sides of the packages, and keep the bees cool in shipping. Four of these crates were stacked up, one above the other, for the purpose of this picture.

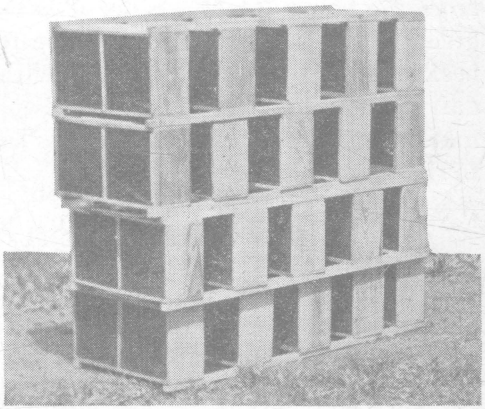
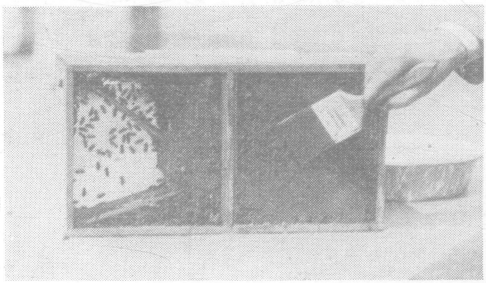


Figure 3 illustrates the first step in preparing the bees for their new quarters. We have already mentioned the advisability of painting the screen of the cage with water to quiet the bees, but in this case the beekeeper is painting the sides of the screen with a sugar sirup, one-half granulated sugar and one-half water. He does this just previous to taking the bees to the hives in which they are to be placed. The screen on each side of the package is thoroughly painted with this sirup, using a new paint brush about 2½ inches wide for the purpose.



If there are a number of packages to be painted, it will be found that by the time the operator gets to the last package, the first one will be completely cleaned by the bees and should be painted again. If each cage is given about three coats of sugar sirup the bees will become well filled with this food and will form a dense cluster.

Figure 4 shows the condition of the package after the bees have lapped up all the sugar sirup they can hold. They form a very dense cluster and will remain almost motionless for some time, resembling closely a quiet, natural swarm. They are now in the ideal condition to be placed in the hive. The quieting effect of this feeding makes it possible to place the bees in their new hives with the least possible commotion.

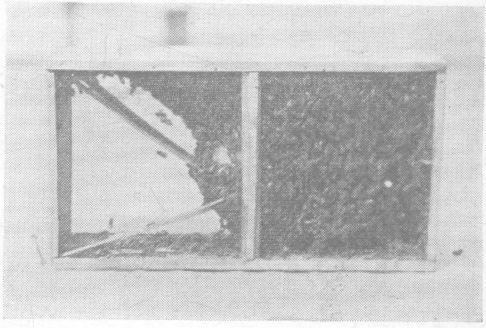


Figure 5 shows the beekeeper removing the wooden lid, which has been nailed over the hole in the top of the cage. It will be observed that a smoker is being used although the bees will be found to be so quiet that no veils are necessary. The purpose of the smoker is important, since we are anxious to open the cage and place the bees in the hive with as few as possible flying in the air to get lost and drift. This work should be done preferably in the late afternoon or early evening, thus reducing the danger of robbing and drifting to the minimum.

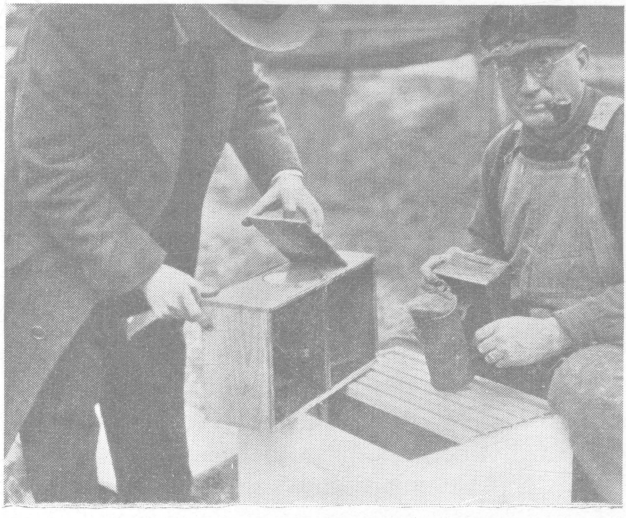


Figure 6 illustrates the method of removing the feeder can from the cage. Care must be taken to allow as few bees as possible to fly into the air. The smoker should be used gently as the can is removed.

Figure 7 shows the package containing the bees in position in the hive with the frames alongside it. It may be observed that the beekeeper has removed the queen cage from the package and is examining it. This is very important, since we must be sure that in each case the queen supplied with the package has survived the trip in first class condition. Should she be dead or injured, the beekeeper should know at once in order that he may advise the queen breeder of the fact and obtain another queen as soon as possible.

It may be noted also that the beekeeper has pried loose a small piece of wood or cardboard which had been tacked over the escape hole of the queen cage. This was placed over the candy in the hole to prevent the bees from liberating the queen while in the package. Now that the bees are in the hive the beekeeper has removed this cover so that they may liberate the queen as soon as possible.

The entrance of the hive should be contracted until there is a hole not more than one inch wide through which the bees may go in and out. This is an important precaution to conserve heat and to avoid robbing.

Figure 8 shows the queen cage in position between package and the first frame. The wire, which suspended the queen cage in the package, should be attached to a tack on the lid of the package. This insures that the cage will not fall down between the frames. A handful of bees lifted out of the package and gently placed on this queen cage is thought to be of help in leading the bees out of the package to form a cluster about the queen. Although we show the queen cage being placed between the package and the adjacent frame, some prefer to place the cage between the second and third frames, away from the package.

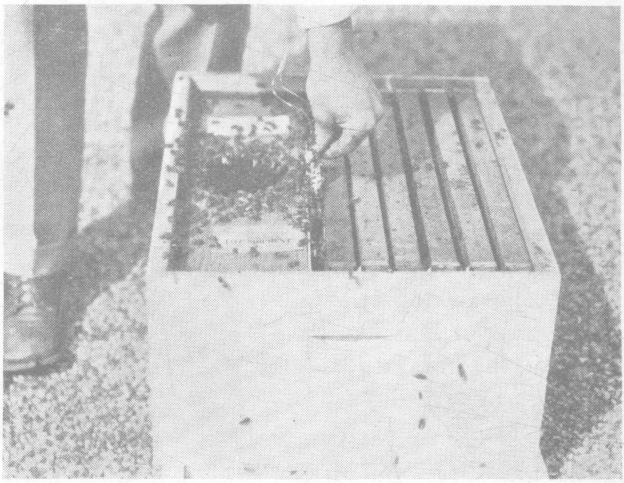
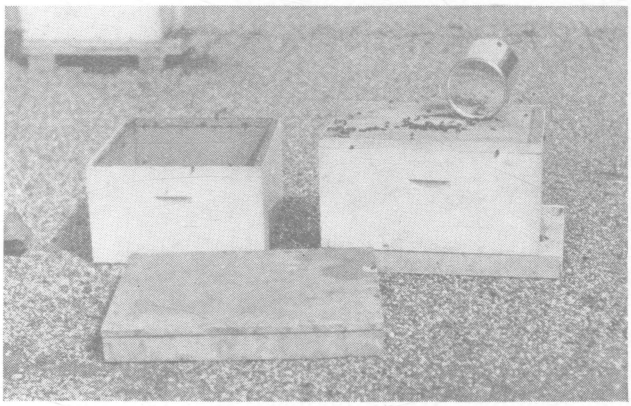


Figure 9 shows the hive after the package has been installed. The inner cover, or honey board, is in position. The escape hole in the inner cover is open and a 10-pound pail filled with sugar sirup is shown ready to be inverted over the escape hole. An extra hive body is shown which will be placed above the inner cover to form a chamber for the pail of sirup. This sirup should be quite warm at the



time it is given to the bees and being inserted through the inner cover in this manner will be drawn down very rapidly by the bees.

We very emphatically advise against the use of entrance feeders for feeding packages which have just been installed. The sirup in the entrance feeder becomes cold and the bees refuse to leave their cluster to obtain the food. Some beekeepers have had serious trouble as a result of trying to feed packages by means of the ordinary entrance feeder.

Figure 10 shows the feeder inverted over the bee escape hole with the extra hive body in place. If the weather is very cool, it is a good policy to fill the space about the feeder with old sacks or newspapers. This tends to conserve the heat furnished by the warm sirup and by the bees themselves. After this packing has been placed about the feeder the telescoping cover is put in position and the bees can be left for four or five days without attention.

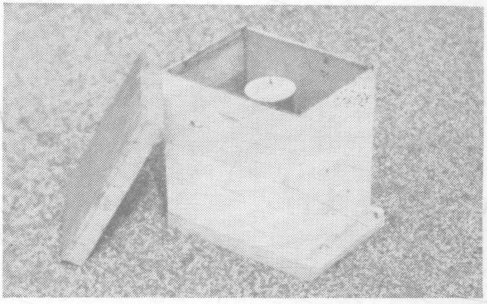
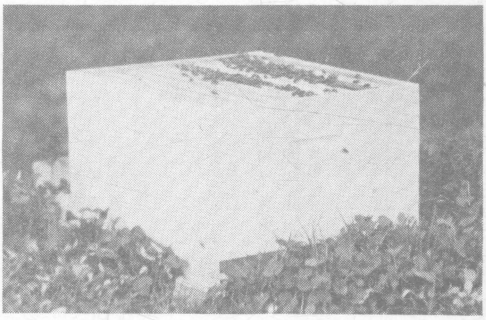


Figure 11 shows the beekeeper removing the empty package. When this picture was taken, the temperature was quite low and the bees were clustered heavily on the outside of the cage next to the frames. They were shaken down inside the hive and the four remaining frames added as shown.

Figure 12 shows the hive after the four remaining frames have been placed in position. It is an excellent practice at this time to give the bees another feeding. We recommend that two 10-pound

pails of warm sirup of the same proportions of sugar and water be given at this time.



The feeders can be placed directly on the top bars of the frames but it is a very good plan to have a number of thicknesses of newspaper to form a sort of mat over the frames, with two holes cut out just large enough to allow the pails to set down on the top bars. The same extra hive body is replaced and the inner cover and outer cover placed above the second hive body. Giving two pails of sirup at this time will be of great benefit to the bees, since they will take it rapidly and the beekeeper will find that the combs will be drawn out quickly.

At a later visit the bees can be examined as to their progress, and if necessary a fourth pail of sirup given them. Of course, natural nectar sources may be available during this time and the need for feeding may not be so acute, but four pails of sugar sirup will take the bees through any sort of weather and give the beekeeper a colony of bees which is quite capable of gathering a full crop of honey.

Figure 13 shows a method employed by beekeepers, who install packages on drawn combs. Instead of giving the sugar sirup to the bees by means of the pepper-box type of feeder as we have just illustrated, they make a practice of having a large tub or wash boiler filled with sirup. The sirup is poured over the empty combs as shown. This will be found to fill

the cells of the comb much more rapidly than can be accomplished by dipping the combs in the sirup. Three or four combs full of sirup placed in the hive at the side away from the package will furnish food enough to carry the bees until it is time to remove the package.

After the cells of the combs are filled with sirup, the frames remain for a few minutes in a vertical position above the tub until they no longer drip. They are then placed in the hive. This is a very rapid method of supplying the bees with food and gives satisfactory results. It may be necessary later to give more food. This can be done in the same manner when the extra combs are placed in the hive at the time the empty cages are removed.

Figure 14 shows colonies which were started from the packages shown in the illustrations in this bulletin. The packages arrived in Columbus, Ohio, April 15, 1929. Figure 14 shows the amount of honey on the colonies, August 6. These supers were filled with honey. Additional supers would have been added, if the beekeeper had been able to purchase them. Directly after the picture was taken, he made a trip by car to a nearby town to obtain supers and frames for these same bees.